WHAT IS CLAIMED IS:

1. An apparatus for stabilizing a bias voltage for an external modulator used for pulse generation, comprising:

optical dividing means for allowing an optical signal output from the external modulator, to which the bias voltage is to be applied, to branch off;

optical/electrical converting means for converting the output optical signal branched by the optical dividing means into an electrical signal;

multiplying means for multiplying the optical signal, output from the external modulator and applied through the optical/electrical converting means, by a drive clock signal applied to the external modulator;

mean output measuring means for measuring a mean output value of products obtained by multiplication of an output signal of the external modulator and the clock signal; and

control means for detecting an optimal bias point of the external modulator on the basis of the mean output value of the products obtained by the multiplication, which is output from the mean output measuring means, and maintaining an optimal bias voltage corresponding to the optimal bias point.

2. The bias voltage stabilizing apparatus according to claim 1, wherein the control means sets a bias point, obtained

when the mean output value from the mean output measuring means is "0", to the optimal bias point.

3. The bias voltage stabilizing apparatus according to claim 1, wherein the control means is operated so that, if the external modulator is a pulse generating modulator for Return-to-Zero (RZ) modulation using Non-Return-to-Zero (NRZ) data, the control means increases the bias voltage applied to the external modulator by ΔV when the mean output value from the mean output measuring means is a positive (+) value, while the control means decreases the bias voltage by ΔV when the mean output value is a negative (-) value, thus maintaining the optimal bias voltage.

4. The bias voltage stabilizing apparatus according to claim 1, wherein the control means is operated so that, if the external modulator is a carrier suppressed pulse generating modulator for Carrier Suppressed Return-to-Zero (CSRZ) modulation, the control means decreases the bias voltage applied to the external modulator by ΔV when the mean output value from the mean output measuring means is a positive (+) value, while the control means increases the bias voltage by ΔV when the mean output value from the mean output measuring means is a negative (-) value, thus maintaining the optimal bias voltage.

5. A method of stabilizing a bias voltage for an external modulator used for pulse generation, the modulator modulating a series of light beams into a pulse-type optical signal, comprising the steps of:

a) detecting an output signal of the external modulator, to which the bias voltage to be stabilized is applied;

b) detecting a drive clock signal applied to the external modulator;

c) outputting a mean output value of products obtained by multiplication of the output signal and the clock signal; and

d) adjusting the bias voltage so that the mean output value becomes "0";

wherein the steps a) to d) are repeatedly performed.

6. The bias voltage stabilizing method according to claim 5, wherein the step d) comprises the steps of:

d1) initializing an optimal bias ascertaining variable "start" to "0";

d2) determining whether the mean output value of the products obtained by the multiplication of the output signal and the clock signal is "0";

d3) determining whether the optimal bias ascertaining variable "start" is "0";

d4) increasing or decreasing the bias voltage by ΔV and then returning to step d2) if the mean output value is "0" and

the optimal bias ascertaining variable "start" is "0";

d5) changing the optimal bias ascertaining variable "start" to "1" if the mean output value is not "0" and the optimal bias ascertaining variable "start" is "0";

d6) increasing or decreasing the bias voltage by ΔV according to whether the mean output value is a negative or positive value, and returning to step d2), if the mean output value is not "0" and the optimal bias ascertaining variable "start" is not "0", or after step d5) has been performed; and

d7) maintaining a current bias voltage if the mean output value is "0" and the optimal bias ascertaining variable "start" is not "0".

7. The bias voltage stabilizing method according to claim 5 or 6, wherein the step d) is performed so that, if the external modulator is a pulse generating modulator for RZ modulation using NRZ data, the bias voltage is increased by ΔV when the mean output value is a positive (+) value, while the bias voltage is decreased by ΔV when the mean output value is a negative (-) value, thus maintaining the optimal bias voltage.

8. The bias voltage stabilizing method according to claim 5 or 6, wherein the step d) is performed so that, if the external modulator is a carrier suppressed pulse generating

modulator for CSRZ modulation, the bias voltage is decreased by ΔV when the mean output value is a positive (+) value, while the bias voltage is increased by ΔV when the mean output value is a negative (-) value, thus maintaining the optimal bias voltage.

9. A computer-readable recording medium for storing a program implemented to perform the respective steps included in the bias voltage stabilizing method of claim 5 or 6.